PB82-136490

Environmental Impact Statement for Final Interstate Rail Carrier Noise Emission Regulation: Source Standards

(U.S.) Environmental Protection Agency
Washington, DC

Dec 79

U.S. Department of Commerce
National Technical Information Service
NTIS.

United States
Environmental Protection
Agency

Office of
Noise Abatement Control
Washington DC 20460

EPA 550/9-79-211
December 1979

PB82-136490

EPA

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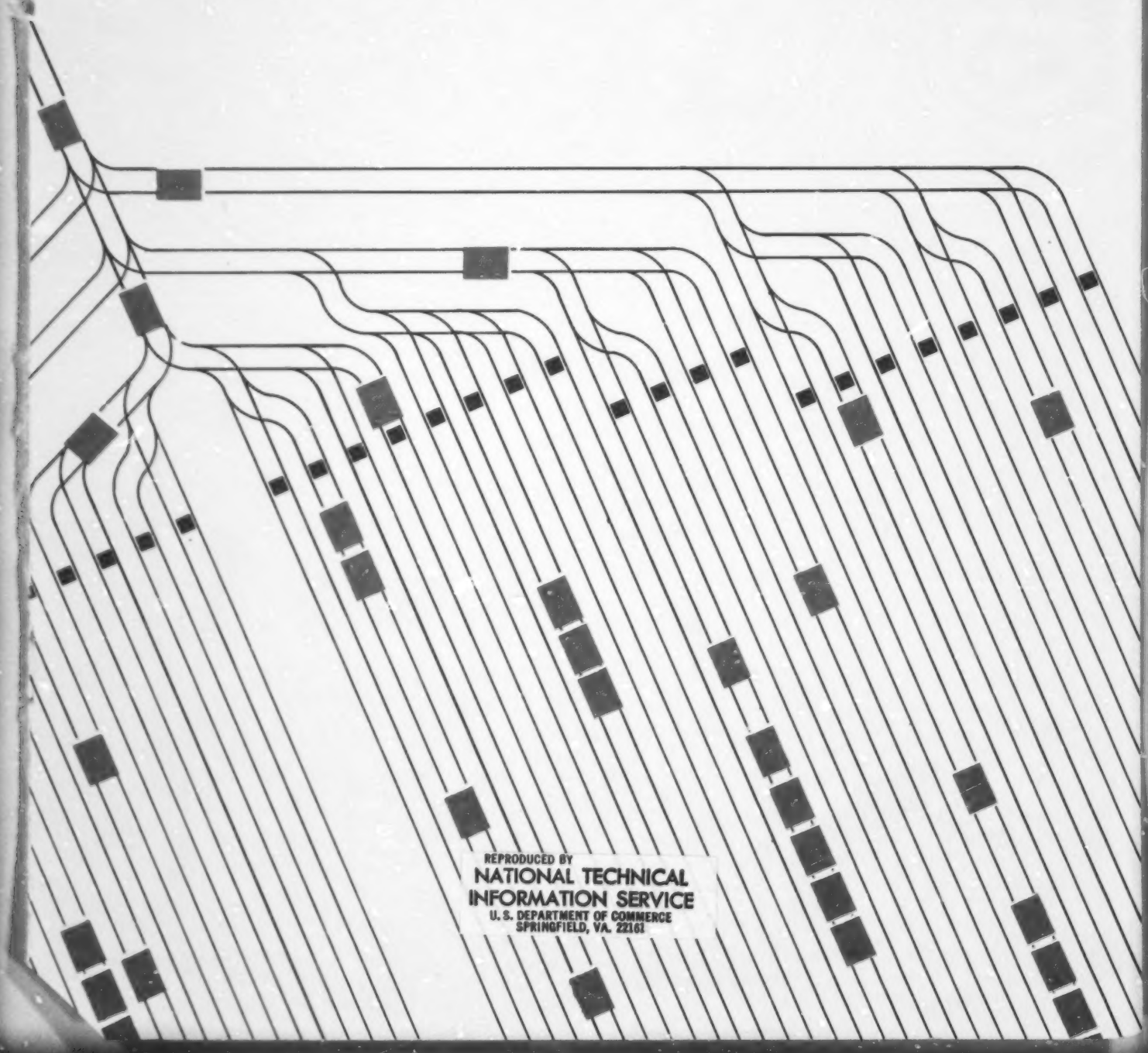

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TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA 550/9-79-211		PB82 136490

4. TITLE AND SUBTITLE	5. REPORT DATE
Environmental Impact Statement for Final Interstate Rail Carrier Noise Emission Regulation: Source Standards	6. PERFORMING ORGANIZATION CODE EPA/ONA 345019
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO. EPA 550/9-79-211
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Environmental Protection Agency Office of Noise Abatement and Control (ANR-490) Washington, D.C. 20460	10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency Office of Noise Abatement and Control (ANR-490) Washington, D.C. 20460	13. TYPE OF REPORT AND PERIOD COVERED 14. SPONSORING AGENCY CODE EPA/ONA

15. SUPPLEMENTARY NOTES

16. ABSTRACT

This document describes the expected environmental impacts and benefits of the national regulation, issued under Section 17 of the Noise Control Act of 1972, to reduce the level of noise emitted by active retarders, locomotive load cell test stands, car coupling, and switcher locomotives. The document briefly summarizes the regulation and details the expected environmental impacts and benefits of the action.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Noise, noise regulation, railroads, railroad facilities, active retarders, load cell test stands, car coupling, switcher locomotives, environmental impacts, environmental benefits,		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
Release Unlimited	Unclassified	10
	20. SECURITY CLASS *(This page)*	22. PRICE
	Unclassified	

EPA Form 2220-1 (9-73)

ENVIRONMENTAL IMPACT STATEMENT

FOR THE FINAL

INTERSTATE RAIL CARRIER NOISE EMISSION REGULATION:

SOURCE STANDARDS

December, 1979

Prepared By

The U.S. Environmental Protection Agency
Office of Noise Abatement and Control

THIS DOCUMENT HAS BEEN APPROVED FOR
GENERAL AVAILABILITY. IT DOES NOT CONSTI-
TUTE A STANDARD, SPECIFICATION, OR REGULATION.

SUMMARY

1. TITLE OF ACTION: Noise Emission Standards for Transportation Equipment: Interstate Rail Carriers

2. DESCRIPTION OF ACTION: This action by the Environmental Protection Agency is taken in response to directives of Section 17 of the Noise Control Act of 1972, as amended, and is intended to reduce the level of noise emitted from railroad facility and equipment sources. The regulation will establish a national standard for specific sources and, as provided by the Act, will preempt state and local government statutes and ordinances. This action establishes noise emission standards for active retarders, locomotive load cell test stands and car coupling and amends Sections 201.11 and 201.12 of the Rail Carrier Noise Emission Regulation (40 CFR Part 201) to provide additional control of switcher locomotive noise.

In arriving at the regulation, the Environmental Protection Agency investigated in detail the railroad transportation industry, noise control technology, noise measurement methodologies, costs of compliance and economic impacts. Results of the research and analyses conducted in each of these areas is described in the "Background Document for Final Interstate Rail Carrier Noise Emission Regulation: Source Standards", December 1979.

3. IMPACTS:

a. Reduction in overall railyard site noise levels and associated cumulative long-term impact upon the exposed population.

b. General improvement on the quality of life, with quietness as an amenity resource.

c. It is estimated that between 6.5 and 10 million people are currently exposed to noise which has been identified as potentially harmful to public health and welfare resulting from railroad operations and other ambient noise sources in the vicinity of railyards.

   It is estimated that compliance with this regulation will result in approximately a 10 to 15 percent reduction in impact considering both extent and severity.

d. The total initial capital cost of the proposed standard is estimated to be $110 million. On an annualized basis, costs will be $24.3 million per year.

ENVIRONMENTAL IMPACT STATEMENT
FOR FINAL
INTERSTATE RAIL CARRIER NOISE EMISSION REGULATION:
SOURCE STANDARDS

ABSTRACT

This Environmental Impact Statement addresses the final noise emission regulation for railroad activities, other than line-haul operations. In arriving at the final regulation, the Environmental Protection Agency carried out detailed investigations of railroad yard operations, noise sources, noise measurement methodologies, available noise control technology, costs attendant to noise control methods, possible economic impacts, and the potential environmental and health and welfare benefits associated with the application of various noise control measures. Data and information were generated as a result of these investigations. Summaries are presented herein of the more pertinent information regarding the environmental impacts expected to result from the regulatory action.

INTRODUCTION

In accordance with Section 17 of the Noise Control Act of 1972, the U.S. Environmental Protection Agency developed a noise emission regulation for railroad locomotives and railcars which are used in interstate commerce. The regulation was promulgated on December 31, 1975. The regulation was challenged in a suit brought against the Agency by the Association of American Railroads (AAR) which contended that it did not establish standards for all of the facilities and equipment of interstate rail carriers as required by the Act. The U.S. Circuit Court of Appeals for the District of Columbia subsequently ruled that the Agency must broaden the scope of its existing rail carrier regulation.

Following the Court's decision, the Agency initiated investigative study and noise measurement efforts to develop the necessary information and data on which to base the regulation. The "Background Document for Final Interstate Rail

Carrier Noise Emission Regulation: Source Standards" details the scope, context and breadth of the work conducted in support of the regulation.* Section 2 of the Background Document characterizes the railroad industry from a physical and economic perspective. Section 3 identifies and classifies the railroad equipment and facilities studied, including railroad yard operations and activities. Baseline noise levels corresponding to specific railroad yard noise sources are described in Section 4. The "best available technology" to reduce noise emissions from the specified noise sources is also described in Section 4. Section 5 describes and details the results of the railroad yard noise propagation model and the potential health and welfare benefits associated with various noise control measures. Section 6 describes the costs attendant to noise control methods to achieve various regulatory study levels and details the possible economic impacts. An analysis of comments submitted to the docket during the comment period is provided in Section 7.

The Agency now is revising the December 31, 1975 regulation to include standards which limit noise emissions resulting from the operation of certain equipment and facilities of interstate rail carriers. As required by the Noise Control Act of 1972, these standards are based on the degree of noise reduction achievable through the application of "best available technology, taking into account the cost of compliance." These regulations apply to both existing and new equipment and facilities.

THE REGULATION

Numerous different combinations of control levels and lead times were investigated as part of the background study. The Background Document details the principal options considered in the decision-making process. Standards are being issued which will limit noise emissions from specific equipment: active retarders, locomotive load cell test stands and switcher locomotives. Additionally, a standard is being issued which will limit the noise due to one railyard operation: car coupling impacts.

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* Available from: EPA Public Information Center (PM-215 Lobby West Tower Gallery No. 1), Waterside Mall, Washington, D.C. 20460, (202) 755-0717.

The standards to control equipment and operation noise are based on measurements to be taken at receiving (residential or commercial) property. This approach establishes a definitive limit on the level of noise that can cross the boundary of a railroad facility onto adjoining or nearby receiving property. Measurements can be made on any receiving property around railroad yards to determine if the standard is being met. Also, this approach assures that abatement occurs only where it is actually necessary to protect people.

The standards and effective dates for sound emanating from a railroad facility to a community location are presented in Table 1.

Table 1

Source	Residential or Commercial Receiving Property Standards, dB (A-Weighted)	Effective Date
Active retarders	83 dB at receiving property	January 15, 1984
Locomotive load cell test stands	78 dB at 30 meters*	January 15, 1984
Car coupling	92 dB at receiving property*	January 15, 1984
Switch engines	87 dB at any throttle setting except idle and 70 dB at idle (stationary), and 90 dB (moving)* all at 30 meters.	January 15, 1984

The noise emission standard for retarders is a not-to-exceed adjusted average maximum A-weighted sound level of 83 dB at residential or commercial receiving property. The effective date for the standard is January 15, 1984.

* See following text for applicability of specific standards

The noise emission standard for locomotive load cell test stands is a not-to-exceed A-weighted sound level of 78 dB measured at 30 meters from the geometric center of the locomotive undergoing test. This standard applies only if the load cell noise level exceeds 65 dB at residential or commercial receiving property. If the test site requirements for noise measurement at 30 meters cannot be met, then the A-weighted sound level from the load cell test stand must not exceed 65 dB when measured at a receiving property measurement location of more than 120 meters from the test stand. The effective date of this standard is January 15, 1984.

The noise emission standard for car coupling is a not-to-exceed adjusted average maximum A-weighted sound level of 92 dB at residential or commercial receiving property unless a railroad demonstrates that the standard is exceeded when cars representative of those found to exceed the standard are coupled at similar locations at coupling speeds that do not exceed 8 miles per hour. The effective date of the standard is January 15, 1984.

The noise emission standard for switch engines is a not-to-exceed A-weighted sound level of 87 dB at any throttle setting except idle, and 70 dB at idle for stationary engines, and 90 dB for moving engines, all at 30 meters. This standard applies to switchers manufactured on or before December 31, 1979 and only when the switch engines in a railyard cause the noise level to exceed 65 dB at a residential or commercial receiving property measurement location. The effective date of this standard is January 15, 1984.

The regulation encompasses noise from the above sources of interstate rail carriers, and it preempts independent state and local regulation of these sources. However, state and local governments, as provided under Section 17 (c)(1) of the Noise Control Act, may adopt and enforce standards that are identical to those promulgated by EPA.

ENVIRONMENTAL IMPACT

The environmental impacts of the final regulation are reduced community and individual effects from railroad noise with certain secondary impacts in other areas of environmental concern.

Between 6.5 and 10 million people in the United States are exposed to day-night average railroad facility and equipment (excluding mainline operations) noise levels of L_{dn} = 55 dB or greater including other ambient sources in the vicinity of railyards. An L_{dn} value of 55 dB is the level of noise EPA has identified as being protective of public health and welfare with an adequate margin of safety. Compliance with the final source standards for existing yards will result in approximately a 10 to 15% reduction in impact, considering both extent and severity.

IMPACT ON OTHER ENVIRONMENTAL CONSIDERATIONS

- Land Use

  It can be anticipated that the impact on land use will be beneficial. Noise regulation will make areas adjacent to railroad yards less noisy, thereby opening new areas to commercial and residential development that previously had been too noisy for such uses. However, since the final rule applies only to residential and commercial property, limited new residential and commercial use is anticipated around railyards. Property values will generally benefit from reduced noise levels except where the EPA rule, preempting more stringent state or local regulations, would permit existing levels to rise. In these cases, property values may decline.

- Air Quality

  The effect of the proposed regulation on air quality will be insignificant. To the extent that increased costs may reduce the demand for rail service, there may be a slight reduction in locomotive air emissions. This will be counter balanced by a slight increase in air emissions resulting from increased fuel comsumption associated with installation of mufflers.

- Water Quality

  Construction of noise barriers may result in increased contaminated runoff in surface waters during the construction periods. This must be controlled by proper control practices, such as the installation of a waste water transportation system. If an oil spray lubrication system is selected as the noise control option for compliance with

the source standard for active retarders, the oil and antifreeze added to the spray water may result in increased contaminated runoff. This must be limited by proper control practices such as the installation of a wastewater treatment system. In some cases a discharge permit will be required for water pollution control purposes by the state.

- Solid Waste Disposal Requirements

The proposed regulation should have no adverse effects on solid waste disposal requirements.

- Wildlife

Although wildlife may possibly benefit from reduced noise levels, not enough is known about such effects to arrive at definite conclusions.

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